Claims

1. Method for receiving multicast data from a communications network, in particular from the Internet, with logical point-to-multipoint connections between a sender of multicast data and several subscribers (PC1, PC2, ..., PCn), wherein a protocol (IGMP) for participation in a multicast group is executed between the subscribers (PC1, PC2, ..., PCn) and a network element (NAS) remote from the subscribers, **characterised in that** if tunnel connections exist between the subscribers (PC1, PC2, ..., PCn) and the network element (NAS) remote from the subscribers, an additional protocol (AP) is executed between the network element (NAS) remote from the subscribers and a network element (CPNT) local to the subscribers, as a result of which identical multicast data of several parallel tunnel connections are sent out only once between these network elements.

2. Communications network with point-to-multipoint connections between a sender of multicast data and several subscribers (PC1, PC2, ..., PCn), wherein the subscribers (PC1, PC2, ..., PCn) have, in addition to network elements (NAS) remote from the subscribers, of the communications network, protocol execution means for executing a protocol (IGMP) for participation in a multicast group, **characterised in that** if tunnel connections exist between the subscribers (PC1, PC2, ..., PCn) and a network element (NAS) remote from the subscribers, organisation means are provided in the network element (NAS) remote from the subscribers, which arrange for multicast data of one multicast group to be sent out only once between the network element (NAS) remote from the subscribers and a network element (CPNT)

local to the subscribers via a multicast data channel (MVCC) instead of via tunnel connections, wherein evaluation means are provided in the network element (CPNT) local to the subscribers, which, on the basis of an evaluation of protocols (IGMP, AP) perform the allocation of the multicast data sent via the multicast data channel (MVCC) to the corresponding subscribers (PC1, PC2, ..., PCn), and wherein distribution means are provided in the network element (CPNT) local to the subscribers for distribution of the multicast data to the corresponding subscribers (PC1, PC2, ..., PCn).

3. Communications network according to Claim 2, **characterised in that** the network element (NAS) remote from the subscribers and the network element (CPNT) local to the subscribers each have additional protocol execution means for executing an additional protocol (AP) in which the network element (NAS) remote from the subscribers informs the network element (CPNT) local to the subscribers of those respective subscribers (PC1, PC2, ..., PCn) to which the multicast data of the various multicast groups are to be transmitted.

4. Communications network according to Claim 2, **characterised in that** an Internet access network (AN), constructed as an ATM network, in which a channel connection in the form of a so-called "Virtual Channel Connection" (VCC1, VCC2, MVCC, AVCC) for each tunnel connection of the subscribers (PC1, PC2, ..., PCn) as well as for each multicast group involving the subscribers (PC1, PC2, ..., PCn), and for the additional protocol, can be established between the network element (NAS) remote from the subscribers and the network element (CPNT) local to the subscribers.

5. Communications network according to Claim 4, **characterised in that** signalling means are provided, which execute a protocol (S) between the ATM network and a network unit (NAS) executing the additional protocol (AP), as a result of which channel connections can be set up for multicast data (MVCC) as required.

6. Internet access server (NAS) that has an interface to an Internet access network (AN), via which at least one channel of a subscriber (PC1, PC2, ..., PCn) can be set up for his individual tunnel connection, and setting-up means are provided in order to set up further channels (MVCC, AVCC), **characterised in that** provision means are provided in order to provide the data specific to one or more subscribers (PC1, PC2), in particular multicast data, on a further channel (MVCC) instead of on the channels (VCC1, VCC2) exclusively specified for said data, and additional protocol execution means for executing an additional protocol (AP) are provided in order to inform a network element (CPNT) terminating the local network (LN) of the subscribers (PC1, PC2, ..., PCn), which subscribers (PC1, PC2) should receive these data.

7. Customer premises network termination (CPNT) that has an interface to one or more subscribers (PC1, PC2, ..., PCn) and a further interface to an Internet access network (AN), via which channels of one or more subscribers (PC1, PC2, ..., PCn) can be set up for their individual tunnel connections and further channels (MVCC and AVCC) can be set up, **characterised in that** additional protocol execution means for executing an additional protocol (AP) are provided, in which the subscriber network terminal (CPNT) is informed of those subscribers (PC1, PC2) to which the data received via

further channels (MVCC), in particular multicast data, are to be additionally transmitted, and insertion means are provided, in order to insert these data into the tunnel connections of the specified subscribers (PC1, PC2).

8. Program module for executing an additional protocol (AP) in a network element (NAS) remote from the subscribers, with the steps:

- Detection of the subscriber's request of a subscriber (PC1, PC2, ..., PCn) to a multicast group by evaluation of the protocol message for participation in a multicast group (IGMP), and

- Sending an additional message (ASSOCIATE) to a network element (CPNT) local to the subscribers, with the information about that subscriber or those subscribers (PC1, PC2) to which the data of a multicast channel (MVCC) are to be transmitted.

9. Program module for executing an additional protocol (AP) in a network element (CPNT) local to the subscribers, with subscribers (PC1, PC2, ..., PCn) connected thereto, with the steps:

- Receipt of an additional message (ASSOCIATE) from the network element (NAS) remote from the subscribers,

- Evaluation of the information contained in the additional message (ASSOCIATE) that specified subscribers or a specified subscriber (PC1, PC2) are to receive data of a specified multicast channel (MVCC), and

- Initiating the distribution to the corresponding subscriber (PC1, PC2) of the data being received or to be received via the specified multicast channel (MVCC).

10. Program module according to Claim 8, with the additional steps:

- Detection of the request for ending the participation of a subscriber (PC1, PC2, ..., PCn) in a multicast group by evaluating the protocol messages for participation in a multicast group (IGMP), and

- Sending an additional message (STOP ASSOCIATION) to the network element (CPNT) local to the subscribers, with the information about those subscribers (PC1, PC2, ..., PCn) which should no longer receive any further data of a specified multicast channel (MVCC).

11. Program module according to Claim 9, with the additional steps:

- Receipt of an additional message (STOP ASSOCIATION) from the network element (NAS) remote from the subscribers,

- Evaluation of the information contained in the additional message (STOP ASSOCIATION) about those subscribers (PC1, PC2) to which data of a specified multicast channel (MVCC) should no longer be transmitted, and

- Initiating the ending of the distribution of the data received via the specified multicast channel (MVCC) to the corresponding subscribers (PC1, PC2).